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09/633,366	08/07/2000	In-Jung Lee	SAM-126	3947
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MILLS & ONELLO, LLP			EXAMINER	
ELEVEN BEAC		NGUYEN, CUONG QUANG		
BOSTON, MA	02108		ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Applicant(s) Office Action Summary Applicant (s) Examiner Cuong Q Nguyen 2811 Art Unit Cuong Q Nguyen 2811 As HORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILUNG DATE of THIS COMMUNICATION. Extensions of them may be available under the provisions of 3 CFR 1.330(s). In or event, however, may a reply be strony litted after St. (S) MONTH (S) FROM THE MAILUNG DATE OF THIS COMMUNICATION. Extensions of them may be available under the provisions of 3 CFR 1.330(s). In or event, however, may a reply be strony litted after St. (S) MONTH (S) or the remaining of the original and st. (S) MONTH (S) to the maille of the communication of the first (D) days with the considered freely. If No period for reply is expelled above, the maximum statutory prints will explay and will explice St. (S) MONTH (S) that the mailled greater for ply or spelled above, the maximum statutory prints will explay and will explice St. (S) MONTH (S) that the mailled greater of the communication, and the mailled greater for ply or spelled above, the maximum statutory prints will explay and will explice St. (S) MONTH (S) that the mailled greater for ply or spelled above, the maximum statutory prints will explay and will explice St. (S) MONTH (S) that the mailled greater for ply or spelled above, the maximum statutory prints will explicate the communication. Failure to sept will be not or explication and the maximum statutory prints will explicate the maximum statutory prints and the maximum statutory prints will be an explication and the maximum statutory prints will explicate the maximum statutory prints will be an explication and the maximum statutory prints will be an explication and the maximum statutory prints will be an explicated to a statutory prints will be an explicated to a statutory prints will be an explication and the maximum statutory prints will be an explication an				an
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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art Fig1d in view of Chen et al. (US 6,033,950).

Admitted prior art Fig1d discloses a capacitor structure comprising: a lower electrode (10); a dielectric layer (14) formed on the lower electrode; a upper electrode (16) including a deposition structure comprises a doped polysilicon layer (16b) having a thickness of 2500 A formed on a first undoped polysilicon layer (16a) with a thickness of 500 A; an metal pattern (24) formed over the upper electrode. See Admitted prior art's Fig1d.

Admitted prior art Fig1d does not teach that a second undoped polysilicon layer formed on the doped polysilicon layer.

Chen et al. disclose a capacitor structure comprising: an upper electrode including an undoped polysilicon layer (34) having a thickness between 540 to 600 A formed on a doped polysilicon layer (32) to prevent out-diffusion from the lower doped polysilicon layer (32) during thermal cycles. See Chen et al.'s Fig.8 and col.2 lines 40-44.

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It would have been obvious to one of ordinary skill in the art to form an undoped polysilicon with a thickness less than 1000 A on top of the doped polysilicon as taught by Chen et al. in order to prevent out-diffusion from the lower doped polysilicon layer (16b) during thermal cycles.

It is noted that, the device formed by the combination of Admitted prior art Fig1d and Chen et al. has the upper electrode including three layers: a doped polysilicon layer between first and second undoped polysilicon layers.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art Fig1d in view of Chen et al. and further in view of Hanagasaki (US 5,767,541).

Admitted prior art Fig1d and Chen et al. teach all the limitations of claims 1-4 as shown above. However, these references do not explicitly teach that the metal pattern (24) over the capacitor structure formed as a laminated structure of Ti/TiN/Al.

Hanagasaki discloses a semiconductor device comprising: a metal pattern (13) formed over a capacitor structure, wherein the metal pattern is formed of Ti/TiN/Al. See Hanagasaki's Fig.1H and col.8 lines 48-56.

It would have been obvious to one of ordinary skill in the art to form the metal pattern (24) in Admitted prior art Fig1d's device of Ti/TiN/AI as taught by Hanagasaki because Al layer is very low resistance conductive material and Ti/TiN multi-layers are Serial Number: 09/633,366 Page 4

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art recognized material for barrier layer which prevent the migration of metal layer into the substrate.

Response to Arguments

2. Applicant's arguments with respect to claims 1-3 and 5-6 have been considered but are not persuasive.

Applicants argue that there is no motivation to combine Chen et al. into Admitted prior art Fig1d because Chen et al. does not solve the same problem as present invention. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as above discussed, one of ordinary skill in the art would have been incorporated an undoped polysilicon on top of the doped polysilicon as taught by Chen et al. in order to prevent out-diffusion from the lower doped polysilicon layer (16b) during thermal cycles. It is noted that, if it is obvious to combine references for one reason it is obvious to combine references for all reasons. In re Grap, 145 USPQ 197 (CCPA 1965); In re Finsterwalder, 168 USPQ 1970); In re Kronig, 539 F.2d 1300, 190 USPQ 425 (CCPA

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1976). In re Dillon, 892 F .2d 1544, 13 USPQ 1337 (1989); In re Dillon 919 F.2d 688, 16 USPQ 1897 Fed. Cir. 1990). NOTE: a reason to combine references that is different than applicant's tend to defeat a hindsight argument before it is made.

Conclusion

- 3. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.
- 4. Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to CUONG Q NGUYEN whose telephone number is (703) 308-1293. The Examiner is in the Office generally between the hours of 6:30 AM to 5:00 PM (Eastern Standard Time) Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor TOM THOMAS who can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 or 308-7724.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Receptionists whose telephone number is 308-0956.

Cuống Nguyen

January 9, 2003